

REMARKS/ARGUMENTS

Claims 1-12, 23, 25, and 26 are active. Claims 13-22 have been withdrawn from consideration. Claim 24 was presented in the after-final Amendment which was not entered. This not-entered claim has been cancelled. New claim 25 finds support in the Examples and further limits claim 1. Claim 26 tracks the limitations in claim 4. No new matter has been added. Entry and favorable consideration of this Amendment is respectfully requested.

The Applicants thank Examiners Sullivan and Richter for the courteous and helpful interview of April 7, 2009. The Applicants urged that Maeda did not suggest selection of an alkoxylated glyceride as opposed to some other carrier or surfactant. The experimental data of record was reviewed. The Applicants were encouraged to point out or explain that any superior and surprising results were commensurate in scope with the claims to avoid the rejection based on Maeda. For example, it was suggested that the Applicants (A) explain why *Citowett* and *Frigate*, used as comparative dispersants in the Examples, represented the effects of using surfactants other than the alkoxylated glycerides of the invention. The Applicants were also asked to point out why the (B) different sulfonylurea or (C) different alkoxylated glycerides exemplified in the specification reasonably represented the corresponding genuses of compounds described in the claims.

Restriction/Election

The Applicants previously elected with without traverse **Group I**, claims 1-12, directed to a composition comprising a sulfonylurea and an alkoxylated glyceride. The Applicants respectfully request that the claims directed to any non-elected subject matter which depend from or otherwise include all the limitations of an allowed elected claim, be rejoined and allowed upon an indication of allowability for the elected claim, see MPEP 821.04.

Objection

Claim 23 was objected to as containing an informality. This issue is now moot.

Rejection—35 U.S.C. §112, second paragraph

Claim 2 was rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

This rejection is moot in view of the amendment above.

Rejection—35 U.S.C. §103(a)

Claims 1-12 and 23 were rejected under 35 U.S.C. §103(a) as being unpatentable over Maeda, et al., U.S. Patent No. 5,830,827. This document does not render the present invention obvious because it provided no motivation to select the particular combination of sulfonylurea herbicide and alkoxylated glyceride. There is no suggestion in the prior art to make this selection in view of the huge genus of formulants disclosed by Maeda and in view of the experimental data of record showing the surprising and superior properties obtained by making the selections required by the invention, see MPEP 2144.08 (4)(a-f) which requires that the Examiner (a) consider the size of the prior art genus, (b) the express teachings of the prior art regarding selection of a subgenus, (c) prior art teachings of preferred or optimal structural species of subgenuses, (d) prior art teachings regarding similar properties or uses to that of the invention, (e) predictability of the technology. In the present case, the prior art discloses a huge genus of formulants, provides no suggestion to select structures of compounds similar to those of the invention, does not provide a reasonable expectation of success for the superior functional properties provided by making the selections required by the invention, nor predict that such selections would provide the superior functionality demonstrated by the experimental data of record.

These experimental data show that a representative number different sulfonylurea herbicides have significantly increased herbicidal activity when admixed with numerous different alkoxylated glycerides, but much less activity when admixed with other non-ionic surfactants (e.g., *Citowett*) or *Tween-20*; or cationic surfactants (e.g., *Frigate*). Maeda fails to suggest the selection of a alkoxylated glyceride surfactant and does not provide a reasonable expectation of success for the enhanced herbicidal properties of such a selection.

Maeda is directed to the combination of flazasulfuron, a chemical stabilizer, and a carrier (coadjuvants). The bottom of page 4 of the OA indicates that “Maeda does not disclose a specific example comprising a surfactant”, but asserts that it would have been obvious to add 0.1% to 10% of certain nonionic surfactants to improve the physical properties of a herbicide composition (see col. 5, line 18, which discloses “The amount of surfactants is usually from 0. 1 to 10.0 parts by weight”). However, Maeda, col. 2, line 36-col. 3, line 22, discloses a huge number of different formulants for admixture with a herbicide. There is no specific guidance in Maeda to single out an alkoxylated glyceride for admixture with sulfonylurea herbicide, nor any recognition that this combination would provide a superior herbicidal effect compared to any other combination of the formulants mentioned in cols. 2 and 3. As discussed in the interview, the selection of an alkoxylated glyceride (as opposed to some formulants disclosed by Maeda) provides surprising and superior herbicidal properties.

To further emphasize the superior herbicidal effects of the claimed combination, the Applicants were encouraged to point out the nature of the other surfactants compared to alkoxylated glycerides in the Examples in the specification.

(A) Comparative surfactants. The specification shows these superior herbicidal properties in comparison to the prior art *Citowett* and *Frigate* herbicide surfactants.

Maeda discloses *Citowett* which corresponds to “polyethylene alkylaryl ether” in the second column, line 55 of this patent. Maeda is silent about whether to select an inferior<sup>1</sup> surfactant like *Citowett*, or an alkoxylated glyceride required by the invention.

Maeda, col. 2, lines 57-58, also discloses “polyoxyethylene sorbitan fatty acid ester” which corresponds to the comparative surfactant Tween 20 (polyoxyethylene sorbitan monolaurate) described in Test Example 2 of the present application. As shown in Table 2 on page 49, use of *Tween 20* in combination with a sulfonylurea herbicide provided significantly inferior herbicidal effect compared to combinations containing each of the eight different alkoxylated glycerides tested.

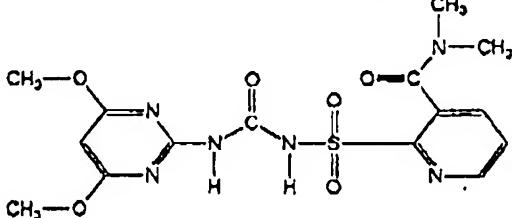
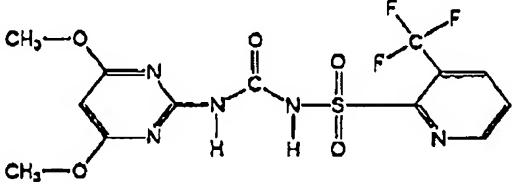
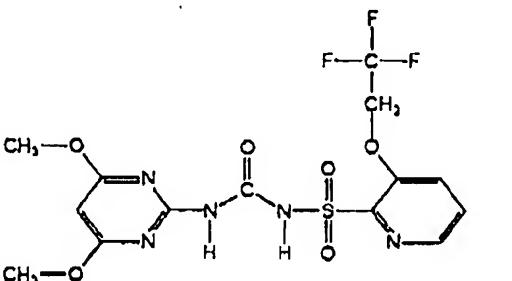
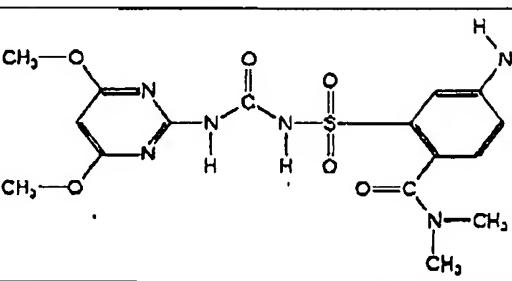
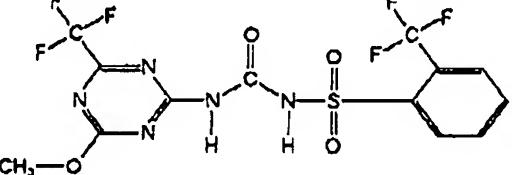
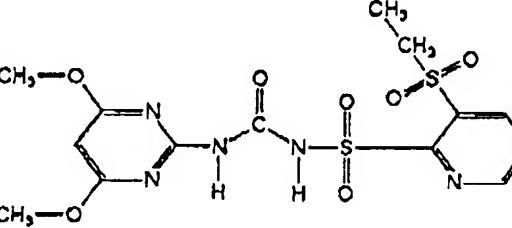
Sulfonylurea herbicide combinations including *Frigate*, a cationic surfactant, were also compared to combinations containing alkoxylated glyceride surfactant. This cationic surfactant when mixed with a sulfonylurea herbicide did not provide the significantly superior herbicidal effect of the invention, see e.g., Tables 1, 9 and 14 of the specification.

(B) The superior herbicidal effect is not limited to a single species of sulfonylurea herbicide. The Examples in the specification show that the superior herbicidal effects are obtained for a number of chemically different types of sulfonylurea herbicides and thus provide a representative number of species to support the claimed genus of sulfonylurea herbicides. The table below depicts six different sulfonylurea's (nicosulfuron, flazasulfuron, trifluoxysulfuron, foramsulfuron, trisulfuron and rimsulfuron) used in Examples of the present application. These structures are reasonably representative of the genus of sulfonylurea herbicides and they take into account the variation of chemical structures within this class of herbicides including species representing both the pyridine- and benzene-types of sulfonylurea herbicides (see the ring structures on the right). Accordingly, the Applicants

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<sup>1</sup> See the inferior herbicidal properties of combinations using *Citowett* in Table 3 (page 50), Table 4 (page 52), Table 5 (page 53)Table 6 (page 54), etc.

respectfully submit that the Examples in the specification adequately and reasonably represent the genus of sulfonylurea herbicides described by the present claims.

<i>Nicosulfuron</i>	 Chemical structure of Nicosulfuron: A 4,6-dimethoxy-2-pyrimidinyl group attached to a urea group (-NH-C(=O)-NH-C(=O)-N(=O)-S(=O)(=O)-) which is further attached to a 4-methyl-2-pyridyl group. The 4-methyl group is substituted with a -CH <sub>2</sub> -N(CH <sub>3</sub> ) <sub>2</sub> group.
<i>flazasulfuron</i>	 Chemical structure of Flazasulfuron: A 4,6-dimethoxy-2-pyrimidinyl group attached to a urea group (-NH-C(=O)-NH-C(=O)-N(=O)-S(=O)(=O)-) which is further attached to a 4-(2,2,2-trifluoroethyl)-2-pyridyl group.
<i>trifloxysulfuron</i>	 Chemical structure of Trifloxysulfuron: A 4,6-dimethoxy-2-pyrimidinyl group attached to a urea group (-NH-C(=O)-NH-C(=O)-N(=O)-S(=O)(=O)-) which is further attached to a 4-(2,2,2-trifluoroethyl)-2-pyridyl group. The 2-pyridyl group is substituted with a -CH <sub>2</sub> -O- group.
<i>foramsulfuron</i>	 Chemical structure of Foramsulfuron: A 4,6-dimethoxy-2-pyrimidinyl group attached to a urea group (-NH-C(=O)-NH-C(=O)-N(=O)-S(=O)(=O)-) which is further attached to a 4-(2-methyl-1,3-dihydro-2H-1,2,4-oxadiazol-2-yl)-2-pyridyl group. The 2-pyridyl group is substituted with a -CH <sub>2</sub> -N(CH <sub>3</sub> ) <sub>2</sub> group.
<i>tritosulfuron</i>	 Chemical structure of Tritosulfuron: A 4,6-dimethoxy-2-pyrimidinyl group attached to a urea group (-NH-C(=O)-NH-C(=O)-N(=O)-S(=O)(=O)-) which is further attached to a 4-(2,2,2-trifluoroethyl)-2-pyridyl group. The 2-pyridyl group is substituted with a -CH <sub>2</sub> -O- group.
<i>rim sulfuron</i>	 Chemical structure of Rim sulfuron: A 4,6-dimethoxy-2-pyrimidinyl group attached to a urea group (-NH-C(=O)-NH-C(=O)-N(=O)-S(=O)(=O)-) which is further attached to a 4-(2,2,2-trifluoroethyl)-2-pyridyl group. The 2-pyridyl group is substituted with a -CH <sub>2</sub> -S(=O)(=O)-CH <sub>3</sub> group.

(C) The superior herbicidal effect is not limited to single species of alkoxylated glycerides. The superior herbicidal properties of the invention are also supported by results showing that a representative number of different alkoxylated glycerides in combination with a sulfonylurea herbicide provide superior herbicidal properties. For example, Table 1 on page 47 shows the superior properties of combinations including eight different types of alkoxylated glycerides and a sulfonylurea herbicide. Tables 2 and 3 also provide similar comparisons. In order to improve the herbicidal effects of sulfonylurea, a herbicidally active ingredient has to pass through a wax layer in plant leaves to penetrate the interior of the leaves. A sulfonylurea is hydrophilic and has relatively high solubility in water and hardly passes through the more hydrophobic wax layer. The inventors have found that selection of an alkoxylated glyceride allows a sulfonylurea to penetrate the wax layer on leaves and exhibit a herbicidal effect inside the leaf. Not all surfactants provide this property.

In the present application, a surfactant having a structure wherein a fatty acid and glycerol which are similar to vegetable oils and have compatibility with a wax layer are bonded to a hydrophilic polyoxyalkylene is combined with sulfonylurea, whereby the herbicide effect of sulfonylurea can be remarkably improved.

The feature of the present invention is neither described nor suggested by Macda, which cannot suggest selection of this class of surfactants, nor provide a reasonable expectation of success for this property of alkoxylated glycerides. Moreover, the experimental data of record shows that these superior herbicidal effects are realized for combinations involving representative numbers of chemically distinct species of both sulfonylurea herbicides and alkoxylated glycerides. Accordingly, this rejection may now be withdrawn.

Conclusion

In view of the amendments and remarks above, the Applicants respectfully submit that this application is now in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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